Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): An apparatus for performing a Transmission Control Protocol/Internet Protocol (TCP/IP) data packet transfers over an IEEE 802.11 network, comprising:

a network interface configured according to IEEE 802.11 for communication over a network according to a TCP/IP layered communication protocol;

a media access communication (MAC) layer within said network interface; and

wherein an IP data packet structure is used within an ~~the larger~~ IEEE 802.11 data packet frame of a media access communication (MAC) layer~~, leaving additional bytes within the IEEE802.11 data packet frame~~;

wherein said IEEE 802.11 data packet frame is larger than said IP data packet structure which leaves additional bytes within the IEEE802.11 data packet frame, which is formatted into multiple blocks;

means for optimizing data transfers as controlled from within said MAC layer by formatting network packets for Internet Protocol (IP) transmission and then ~~adding~~ using said additional bytes for IEEE 802.11 transmission of Forward Error Correction (FEC) and checksums, and for retransmitting blocks when performing partial packet retransmissions in response to receiving a partial ACK which contains information on error blocks from a receiver.

2. (currently amended): An apparatus for performing Transmission Control Protocol/Internet Protocol (TCP/IP) data packet transfers over an IEEE 802.11 network, comprising:

a network interface configured according to IEEE 802.11 for communication over a network according to a TCP/IP layered communication protocol;

a media access communication (MAC) layer within said network interface; and

at least one optimization process executing within said MAC layer and configured for formatting and processing network packets;

wherein said optimization processing comprises performing partial packet retransmission, in response to receiving a partial ACK which contains information on error blocks from a receiver, by dividing each Internet Protocol (IP) packet into multiple data blocks and adding Forward Error Correction (FEC) or checksum information for the data blocks within additional bytes defined within the IEEE 802.11 frame which are not utilized in IP protocol frames, and retransmitting blocks by piggybacking them within said extra bytes within the IEEE 802.11 frame.

3. (previously presented): An apparatus as recited in claim 2, further comprising suppressing ACKs within an ACK suppression system by deleting a portion of the packet acknowledgments (ACKs), belonging to the same TCP connection and stored within a TCP packet queue of the network interface, which are determined to be unnecessary to sustain proper network performance.

4. (original): An apparatus as recited in claim 2, wherein said partial packet retransmission system is configured for dividing a network packet frame into a plurality of data blocks including a first plurality of retransmission data blocks for retransmissions between a sender and a receiver.

5. (original): An apparatus as recited in claim 4, wherein said plurality of data blocks further includes a second plurality of payload data blocks configured for transmitting payload information from said sender to said receiver.

6. (original): An apparatus as recited in claim 5, wherein said plurality of data blocks further comprise checksum data for recovering data bit errors in said plurality of data blocks for increasing the reliability of the transmission of said plurality of data blocks.

7. (original): An apparatus as recited in claim 6, wherein said checksum data is implemented in a software scheme.

8. (original): An apparatus as recited in claim 5, wherein said plurality of data blocks further comprises:

forward error correction (FEC) data configured for determining whether said data blocks are corrupted or unrecoverable;

whereby the reliability of transmitting the plurality of said data blocks is increased.

9. (original): An apparatus as recited in claim 8, wherein said forward error correction is at least partially performed by electronic hardware.

10. (previously presented): An apparatus as recited in claim 3, wherein the ACK suppression system is configured to modify said MAC layer to allow ACK packet suppression in the network.

11. (original): An apparatus as recited in claim 10, wherein said ACK suppression system speeds the transfer of network data for each ACK packet deleted in the TCP packet queue in the network.

12. (original): An apparatus as recited in claim 10, wherein said ACK suppression system is configured to piggyback unreceived data blocks transmitted in a

first of said plurality of data blocks partially transmitted within a second of said plurality of data blocks transmitted subsequent to the first when the sender receives a partial acknowledgment from the receiver.

13. (original): An apparatus as recited in claim 12, wherein said ACK suppression system is configured for having said sender retransmit the entire data frame if said sender receives a negative acknowledgment from the receiver for a transmitted data frame, and as long as the retransmission does not exceed a maximum retransmission time.

Claims 14-15 (canceled)

16. (currently amended): A method of optimizing Transmission Control Protocol/Internet Protocol (TCP/IP) data packet transfer over an IEEE 802.11 wireless network, comprising:

communicating over a IEEE 802.11 wireless standard between a sender and receiver according to a TCP/IP layered communication protocol;

dividing a network packet frame into a plurality of data blocks; and

wherein [[the]] an IP data packet structure is used within an ~~the larger~~ IEEE 802.11 data packet frame of a media access communication (MAC) layer~~, leaving extra bytes within the IEEE802.11 data packet frame~~;

wherein said IEEE 802.11 data packet frame is larger than said IP data packet structure which leaves additional bytes within the IEEE802.11 data packet frame, which is formatted into multiple blocks;

wherein said Internet Protocol (IP) protocol defines a Maximum Transmission Unit (MTU) size;

partially retransmitting untransmitted data blocks in said plurality of data blocks corresponding to the network packet frame, in response to receiving a partial ACK

which contains information from a receiver on which blocks from the packet to retransmit, by piggybacking specific blocks from the packet ~~them~~ within extra bytes of space in a frame under the IEEE 802.11 wireless standard which are not available in the Maximum Transmission Unit (MTU) size utilized with the Internet Protocol (IP) protocol.

17. (original): A method as recited in claim 16, further comprising checking each of the plurality of data blocks in the network packet frame using a forward error correction (FEC) information scheme attached to the network packet frame to determine whether a particular data block in the plurality of data blocks is correct or recoverable.

18. (original): A method as recited in claim 17, wherein said checking is configured for sending an acknowledgment by said receiving node to said sending node with reference to a transmitted network packet frame in response to said plurality of data blocks being correct or recoverable.

19. (original): A method as recited in claim 17, wherein said checking is configured for sending a partial acknowledgment from said receiving node to said sending node with respect to a transmitted network packet frame, in response to said plurality of data blocks being corrupt or unrecoverable.

20. (original): A method as recited in claim 19, wherein said checking is configured for transmitting a negative acknowledgment from said receiving node to said sending node to request retransmission of an entire network packet frame, in response to determining that said number of corrupt data blocks in said plurality of data blocks exceeds a threshold and said retransmitted data blocks are corrupt.

21. (original): A method as recited in claim 19, wherein said sending of said partial acknowledgment comprises piggybacking the unrecoverable or the corrupt data blocks in a subsequent network packet frame transmission from said sending node to said receiving node.

22. (original): A method as recited in claim 21, wherein upon said sending node receiving a partial acknowledgment from said receiving nodes, said sending node piggybacks unreceived data blocks on the data frames which will be transmitted next.

23. (original): A method as recited in claim 22, wherein the space for said piggyback comprises space in the network data frame which is approximately 800 bytes in length.

24. (original): A method as recited in claim 23, wherein said sending node retransmits the entire data frame if the maximum retransmission time is not exceeded when said sending node receives a negative frame transmission acknowledgment.

25. (previously presented): A method as recited in claim 16, further comprising:

suppressing portions of said plurality of data block transmit acknowledgments between a sending node and a receiving node by deleting a portion of the transmit acknowledgments (ACKS);

wherein said acknowledgment suppression system is configured to periodically check the network queue and to delete unnecessary packet acknowledgments in the network queue.

26. (original): A method as recited in claim 25, wherein said packet acknowledgments comprise transport control protocol (TCP) acknowledgments.

27. (original): A method as recited in claim 26, wherein said acknowledgment suppression system is configured for reducing the number of acknowledgments transmitted in bursts, thereby mitigating self-contention within the transport control protocol (TCP) communication.

28. (cancelled)

29. (previously presented): A method as recited in claim 27, wherein said acknowledgment suppression system is configured to not delete the acknowledgment packet from the transport control protocol (TCP) packet queue when it is determined that said acknowledgement sequence number in the transport control protocol (TCP) packet queue is equal to the sequence number in the most recent TCP acknowledgment.

30. (currently amended): A network data transfer optimization system for optimizing network packet communications between two non-identical networks, the system comprising:

a network packet data formatting unit configured for formatting network packets into frames for transmission from a first network comprising a Transport Control Protocol/Internet Protocol (TCP/IP) based network to a second network comprising an IEEE 802.11 wireless network;

wherein an internet protocol (IP) data packet structure is used within an ~~the larger~~ IEEE 802.11 data packet frame of a media access communication (MAC) layer~~, leaving extra bytes within the IEEE802.11 data packet frame for packet retransmission~~;

wherein said IEEE 802.11 data packet frame is larger than said IP data packet structure which leaves extra bytes within the IEEE802.11 data packet frame for packet retransmission, which is formatted into multiple blocks;

a network packet retransmission unit configured for partially retransmitting unreceived data blocks in the network packets, in response to receiving a partial ACK which contains information from a receiver on which blocks from the packet to retransmit, by piggybacking the data within extra bytes which are available in a frame under the IEEE 802.11 protocol and not used in the TCP/IP network between said first network and said second network; and

a network packet suppression unit configured for deleting a number of unnecessary network acknowledgment packets belonging to the same connection and stored on the packet queue and corresponding to network packets transmitted between said first network and said second network to enable a network connection to said first network.

31. (previously presented): A system as recited in claim 30, further comprising a network packet suppression unit configured for deleting a portion of unnecessary network acknowledgment packets belonging to the same connection and stored on the packet queue and corresponding to network packets transmitted between said first network and said second network to enable a network connection to said first network.

32. (canceled)

33. (original): A system as recited in claim 30, wherein said network packet data formatting unit is configured for formatting a data packet of said first network into a plurality of data blocks for transmission to said second network.

34. (original): A system as recited in claim 33, wherein said plurality of data blocks includes checksum data for determining whether a particular data block is corrupted or uncorrupted.

35. (original): A system as recited in claim 34, wherein said plurality of data blocks further includes forward error correction (FEC) data configured for recovering data from error bits in the plurality of data blocks.

36. (currently amended): A wireless network, comprising:

a first network having a first network transport protocol comprising a Transport Control Protocol/Internet Protocol (TCP/IP);

a second network having a second network transport protocol comprising an IEEE 802.11 wireless network;

wherein an internet protocol (IP) data packet structure is used within an ~~the larger~~ IEEE 802.11 data packet frame of a media access communication (MAC) layer~~, leaving extra byte space within the IEEE802.11 data packet frame~~;

wherein said IEEE 802.11 data packet frame is larger than said IP data packet structure which leaves extra byte space within the IEEE802.11 data packet frame, which is formatted into multiple blocks; and

a network data transfer optimization system coupled to a media access control layer of said second network and configured for optimizing data transfer between network nodes in said first network and said second network;

wherein said optimization system utilizes ACK frames, and the sending of partial ACKs, by the receiver to feedback information on unrecoverable or corrupted data blocks, wherein upon receipt the sender can limit transmission to a retransmission of unrecoverable or corrupted blocks within the packet without retransmitting the entire data packet frame; and

wherein said retransmitted unrecoverable or corrupted blocks are piggybacked in a subsequent frame by using extra byte space in the IEEE 802.11 frame which are not utilized in the IP frame.

Claims 37-38 (canceled)

39. (original): A wireless network as recited in claim 36, wherein said first network is an Ethernet network.

40. (previously presented): A wireless network as recited in claim 36:

wherein a 1500 byte Maximum Transmission Unit (MTU) is maintained to conform to the Internet Protocol (IP) architecture, while all 2312 bytes are utilized within an IEEE 802.11 frame; and

wherein the additional 800 bytes are not utilized for carrying the IP packet, but are utilized for retaining forward error correction (FEC) information or checksum information and for partial packet retransmission.

41. (original): A wireless network as recited in claim 36, wherein said data transfer optimization system comprises a network data formatting unit configured for formatting network data packet frames transmitted in said second network.

42. (original): A wireless network as recited in claim 41, wherein said data transfer optimization system further comprises a network data packet retransmission unit configured for retransmitting partial data packets corresponding to the network data packet frames transmitted from a sending node to a receiving node when the network data packet frames include corrupt or unrecoverable data blocks.

43. (original): A wireless network as recited in claim 41, wherein said data transfer optimization system further comprises a network data packet transmission acknowledgment suppression system configured for removing duplicate or unnecessary data packets from a network data queue to enable a transport control protocol (TCP) connection.

44. (original): A wireless network as recited in claim 42, where said network data packet retransmission unit is configured for dividing up said network data packet frame into data blocks including a media access control layer header having information to enable the data packet frame to be transmitted between said first network and said second network.

45. (original): A wireless network as recited in claim 44, wherein said data blocks further comprise checksum information for improving the reliability of data transmission between said first network and said second network.

46. (canceled)

47. (original): A wireless network as recited in claim 43, wherein said network data packet transmission acknowledgment suppression system is configured to not delete an acknowledgement from the packet queue if its sequence number being transmitted in a transport control protocol (TCP) acknowledgment is equal to the packet in the most recent TCP acknowledgment.

48. (currently amended): An apparatus as recited in claim 1[[,]] :

wherein said Internet Protocol (IP) protocol defines a Maximum Transmission Unit (MTU) size; and

wherein said partial packet retransmissions comprise dividing each Internet Protocol (IP) packet into multiple data blocks and adding Forward Error Correction (FEC) or checksum information for the data blocks within extra bytes available in the IEEE 802.11 protocol which are not available in the Maximum Transmission Unit (MTU) of the IP protocol and retransmitting blocks by piggybacking them within said extra bytes within the IEEE 802.11 frame.

49. (previously presented): An apparatus as recited in claim 1, wherein the suppression of unnecessary packet acknowledgements comprises deleting a portion of the packet acknowledgments (ACKs), belonging to the same TCP connection and stored within the queue of the network interface, which are determined to be unnecessary to sustain proper network performance.